

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A coherent light source for simultaneously emitting a first light and a second light having a wavelength shorter than that of the first light, comprising:
a light source main body for emitting at least the first light;
a member ~~transmitting or reflecting~~ arranged to transmit or reflect the first light; and
a functional film being provided on at least a part of the member, the functional film having a photocatalytic effect to be induced by the second light,

wherein the first light and the second light are to irradiate approximately equal areas on an irradiation surface of the member including the functional film,

wherein the wavelength of the first light is greater than or equal to 400 nm and less than or equal to 460 nm, and the wavelength of the second light is less than or equal to 390 nm.

2. (Cancelled)

3. (Original) The coherent light source according to claim 1, wherein
the first light and the second light travel approximately the same optical paths.

4. (Cancelled)

5. (Original) The coherent light source according to claim 1, wherein
the light source main body includes a semiconductor laser formed of a III-V nitride semiconductor material.

6. (Cancelled)

7. (Original) The coherent light source according to claim 1, further comprising
a first wavelength conversion element for converting a part of the first light to the second light.

8. (Original) The coherent light source according to claim 7, wherein the first wavelength conversion element is formed of a nonlinear optical material or an upconversion material.

9. (Currently Amended) The coherent light source according to claim 7, wherein the light source main body is formed of a solid-state laser medium including Nd or Yb, and

the first wavelength conversion element ~~converts~~ is arranged to convert the first light emitted from the solid-state laser into the second light which is a third harmonic.

10. (Currently Amended) The coherent light source according to claim 7, wherein the light source main body is formed of a solid-state laser medium including Nd or Yb and a second wavelength conversion element for converting light from the solid-state laser into the first light which is a second harmonic, and

the first wavelength conversion element ~~converts~~ is arranged to convert the light from the solid-state laser and the first light into the second light which is sum frequency light.

11. (Currently Amended) The coherent light source according to claim 7, wherein the light source main body is formed of a semiconductor laser, and the first wavelength conversion element ~~converts~~ is arranged to convert the first light emitted from the semiconductor laser into the second light which is a higher harmonic.

12. (Currently Amended) An optical system, comprising:
a coherent light source for simultaneously emitting a first light and a second light having a wavelength shorter than that of the first light;
a condensing or projecting optical member; and
a functional film being provided on at least a part of the condensing or projecting optical member which ~~receives~~ is arranged to receive irradiation of light from the coherent light source ,
the functional film having a photocatalytic effect to be induced by the second light,

wherein the first light and the second light are to irradiate approximately equal areas on an irradiation surface of the condensing or projecting optical member including the functional film,

wherein the wavelength of the first light is greater than or equal to 400 nm and less than or equal to 460 nm, and the wavelength of the second light is less than or equal to 390 nm.

13. (Currently Amended) The optical system according to claim 12, wherein the functional film is provided on ~~an~~ the irradiation surface, ~~which receives the irradiation surface being arranged to receive~~ the first light at a power density of 100 W/cm^2 or higher in the optical member, ~~and~~

~~the first light and the second light irradiate approximately equal areas on the irradiation surface.~~